



PP vs PE Ducts

Question:

Can we use polypropylene (PP) duct instead of polyethylene (PE) duct and vice versa?

Answer:

As per AASHTO LRFD Bridge Construction Specifications at 10.8.3/8.5 corrugated plastic duct to be completely embedded in concrete shall be constructed from either PE or PP.

As per post tensioning manual from PTI at 3.3.4, ducts can be either HDPE or PP.

As per FIB (Int'l Concrete Federation) bulletin 75 at 1.2:

- a. PP can handle temperatures that are 10 to 20°C higher than those that PE can before it softens. PP maintains shape and rigidity well in hot weather conditions.
- b. PP has better wear resistance under transverse loading than PE in particular at elevated temperatures. This is important during stressing when the prestressing steel tries to wear through the duct thickness.
- c. PP has better lateral load resistance than PE, meaning that the duct made with PP may not deform or deform less than PE, where the duct is resting on support bars (stirrups).